ISSN (print) 0093-4666 © 2015. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/130.1111

Volume 130, pp. 1111–1116 *October–December 2015*

Terriera fici sp. nov. on *Ficus vasculosa* from Hainan Province, China

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Abstract — *Terriera fici,* a new species that develops on leaves of *Ficus vasculosa,* was collected in 2014 from Jianfengling National Forest Park of Hainan Province, China. Description, illustration, and comments are given for this fungus. The type collection is deposited in the Reference Collection of Forest Fungi of Anhui Agricultural University, China (AAUF).

Key words — *Rhytismataceae, Rhytismatales, Moraceae,* morphology, taxonomy

Introduction

Eriksson (1970) erected the monotypic genus *Terriera* B. Erikss. for *T. cladophila* (Lév.) B. Erikss.; Minter (1996) provided a detailed description of the type species. *Terriera* species are distributed worldwide and associate with both angiosperms and gymnosperms. IndexFungorum (2015) lists 27 specific and two varietal epithets for the genus, of which SpeciesFungorum (2015) accepts 24 species in *Terriera.*

Recently, during investigations of the *Rhytismatales* from Jianfengling National Forest Park of Hainan Province, China, a new *Terriera* species was discovered.

Materials & methods

The study was based on collections made in 2014 from Hainan, China. Specimens were rehydrated in water for 15 min and ascomata and conidiomata were sliced into 10–15 µm thick sections using a freezing microtome (Jinhua, China). The structure of

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the fruiting bodies was observed in 0.1% (w/v) cotton blue in phenol glycerin. The color of the internal structures of the fruiting bodies was observed in water. Measurements and drawings of asci, ascospores, paraphyses, conidiogenous cells and conidia were made from squash mounts in 5% KOH solution. Line and point integrated illustrations of internal structures of ascomata were prepared using a Panasonic XSJ-2 microscope drawing device. Photographs were taken using a Sony DSC-TX7C camera and a digital camera connected to an Olympus CX31RTSF microscope. The type specimen is deposited in the Reference Collection of Forest Fungi of Anhui Agricultural University, Hefei, China (AAUF).

Taxonomy

Terriera fici Y.R. Lin & Yuan Wu, **sp. nov.** FIGS 1, 2

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> Differs from *Terriera nitens* by its larger subrounded ascomata, its much thinner excipulum, its well developed subhymenium consisting of textura angularis and intricata, its septate paraphyses branching 1–2 times, its somewhat long-stalked asci, and the absence of trichogynes in its conidiomata.
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> TYPE: China, Hainan, Jianfengling National Park, Tianchi, alt. 880 m, on dead leaves of *Ficus vasculosa* Wall. ex Miq. (*Moraceae*), 18 June 2014, Y.R. Lin, S.J. Wang & Y.F. Xu 2804 (**Holotype**, AAUF 68912).
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> ETYMOLOGY: *fici*, referring to the host genus.

COLONIES on both sides of dead leaves, forming distinct subround to irregular, yellowish to gray-white bleached spots 5–12 mm diam. that tend to coalesce into larger irregular shapes.

ZONE LINES somewhat frequent, gray-black or black, thin, surrounding or partly surrounding the pale areas.

CONIDIOMATA developing on both sides of fallen leaves, principally on the lower side of the leaf, scattered, occasionally coalescent. In surface view, conidiomata 90–200 µm diam., rounded or subrounded, somewhat raising the substratum surface, dark brown to gray-black, discharging spores through an conspicuous central ostiole or split. In vertical section, conidiomata subepidermal, lenticular. UPPER WALL 10–18 µm thick, black-brown but roughly black near the opening, consisting of 1.5–4 µm diam., thick-walled angular cells. BASAL WALL dark brown, 10–20 µm thick, composed of 2–3 µm diam. angular cells. SUBCONIDIOGENOUS LAYER 4–8 µm thick, comprising nearly colorless, thin-walled angular cells. CONIDIOGENOUS CELLS 9–14 × 2–3 µm, subcylindrical, tapering towards the apex, proliferating sympodially and percurrently. CONIDIA 4–5 × 1–1.2 µm, cylindrical or subclavate, hyaline, straight or slightly curved.

ASCOMATA in similar positions to conidiomata on the substratum, scattered to clustered. In surface view, ascomata 360–520 µm diam., rounded or

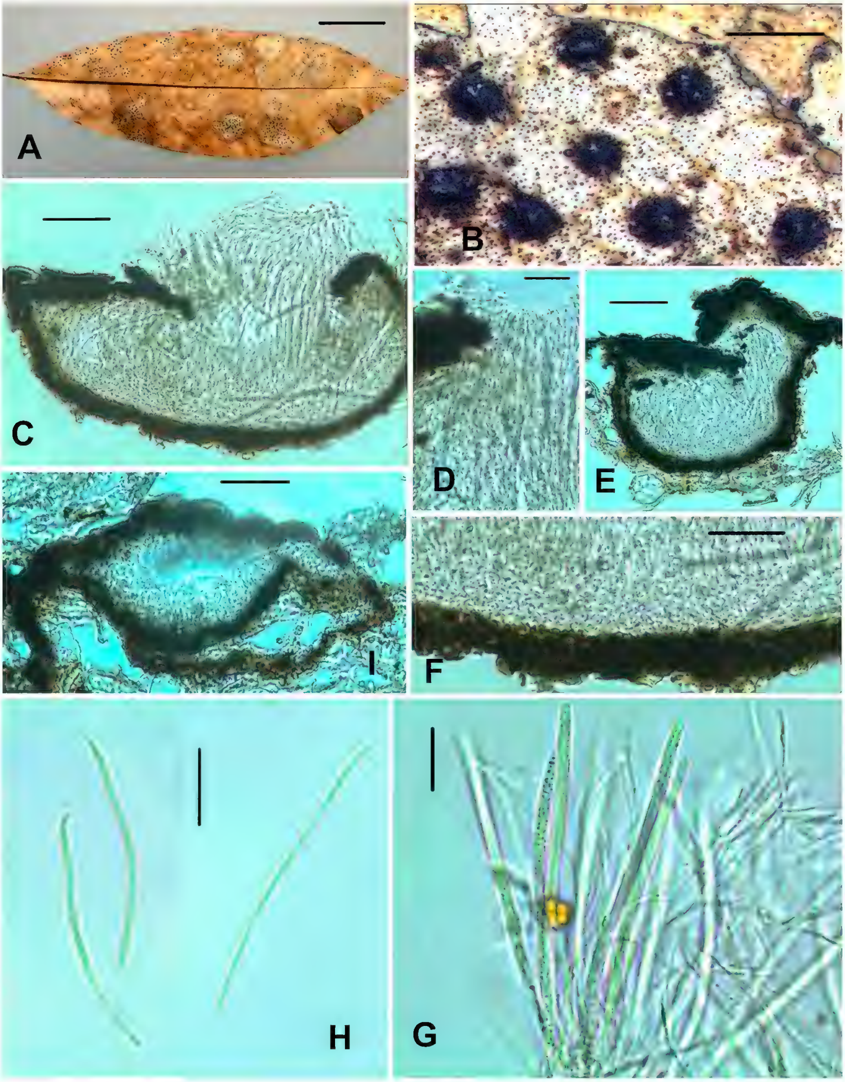

Fig. 1. *Terriera fici* (holotype AAUF 68912) on *Ficus vasculosa:* A. Fruiting bodies on leaf. B. Detail of ascomata and conidiomata. C. Ascoma in median vertical section. D. Upper portion of hymenium. E. Ascoma in section, showing strongly carbonized and brittle tissue of covering stromatic extension. F. Subhymenium and basal stroma. G. Asci and paraphyses. H. Ascospores. I. Conidioma in median vertical section. Scale bars: A = 20 mm; B = 8 mm; C = 50 µm; D, H = 20 µm; E, F, I = 30 µm; G = 15 µm.

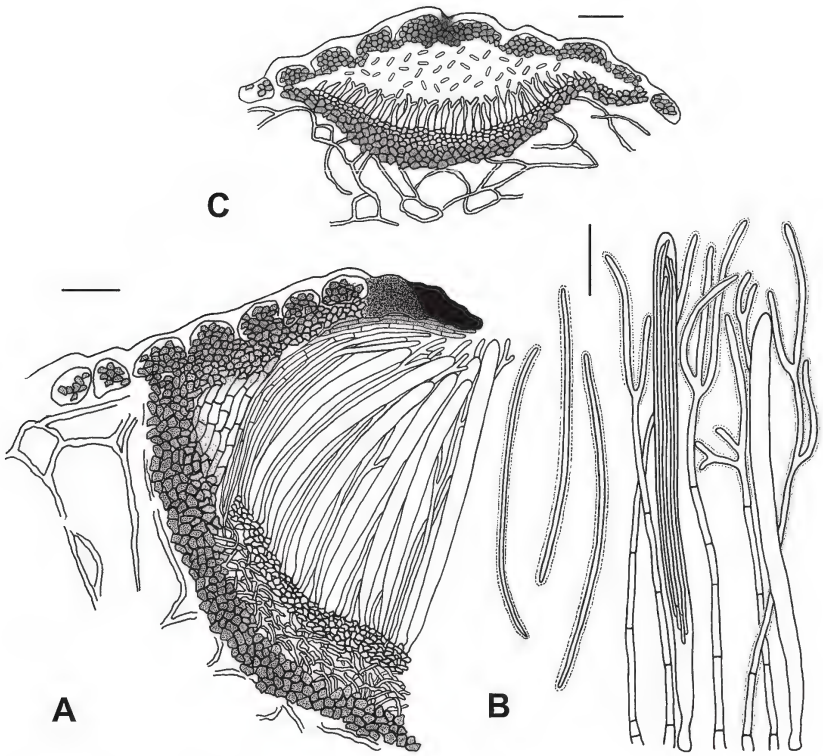

Fig. 2. *Terriera fici* (ex holotype AAUF 68912): A. Portion of ascoma in median vertical section. B. Asci, paraphyses, and ascospores. C. Conidioma in median vertical section. Scale bars: A = 20 µm; B = 15 µm; C = 10 µm.

subrounded, black, slightly shiny, with conspicuous edge, moderately raising the surface of the leaf, opening by a single longitudinal split extending 2/3–4/5 the length of the ascoma. In median vertical section, ascomata subepidermal. Covering stroma 18–25 µm thick, composed of a black-brown textura angularis with thick-walled cells 3–5.5 µm diam., connecting to the basal stroma. Along the edge of the ascomatal opening, there is a 8–15 µm thick, flat extension adjacent to the covering stroma, which is comprised of strongly carbonized and brittle tissue with no obvious cellular structure. Excipulum very poorly developed, arising from the inner layer of the basal stroma, consisting of hyaline textura porrecta. Basal stroma 15–22 µm thick, dark brown to black, composed of (3–)4–6 rows of 3.5–6 µm diam., angular, thick-walled cells. A layer of 10–30 µm thick textura prismatica, comprised of nearly colorless or light brown cells 2.5–4 µm diam. occurs between the covering and basal stromata. Subhymenium well developed, 15–20 µm thick, strongly concave to form a cup shape, consisting of hyaline textura angularis and intricata. PARAPHYSES 100–120 × 1–1.2 µm, filiform, septate, mostly branching 1–2 times in the upper portion, sometimes slightly tapered at the branched apices, covered in a c. 1 µm thick gelatinous matrix. ASCI ripening sequentially, 90–115 × 4–5.5 µm, narrow cylindrical, apex rounded or subacute, without circumapical thickening, not bluing in iodine, discharging spores through a small apical pore, 8-spored, stalk 20–25 µm in length. ASCOSPORES arranged in a fascicle, 65–80 × 0.8–1 µm, filiform, colorless, aseptate, rounded to obtuse at the apex, slightly tapered towards the rounded or subacute base, hyaline, with a c. 0.5 µm thick gelatinous sheath.

HOST, HABITAT, & DISTRIBUTION: Producing conidiomata and ascomata on fallen leaves of *Ficus vasculosa*. Known only from the type locality, Hainan Province, China.

COMMENTS: *Terriera fici* is very similar to *T. nitens* Y.R. Lin in the ascomatal openings, the appearance of the conidiomata, and the ascal and ascospore shapes. However, *T. nitens* differs in its suborbicular or broadly elliptical smaller ascomata (240–320 × 190–250 µm), a well developed excipulum (12–16 µm thick near the opening), a much thinner subhymenium (5–9 µm) consisting of textura porrecta, unbranched aseptate paraphyses, slightly short-stalked asci, and trichogynes present in the conidiomata (Chen et al. 2014).

Terriera minor (Tehon) P.R. Johnst. is distinguished from the new species by the absence of zone lines and asexual conidiomata, oblong to oblong-elliptic ascomata, a flat or slightly concave subhymenium, much wider asci (6–7 µm), paraphyses extending 20–30 µm beyond asci, and slightly larger ascospores (70–100 × 1.5–2 µm) (Johnston 1989, as *Lophodermium minus*).

Terriera fici also resembles *Lophodermium illiciicola* S.J. Wang et al., which is distinguished by smaller ascomata (280–360 × 260–300 µm), absent conidiomata, a thinner subhymenium (10–15 µm thick) consisting of textura angularis-porrecta, and unbranched paraphyses markedly longer than the asci (Wang et al. 2006).

Acknowledgements

We are grateful to Prof C.L. Hou (Capital Normal University, China) and Prof M. Ye (Hefei University of Technology, China) for invaluable suggestions and critically reviewing the manuscript, to Mr Y.F. Xu for the field investigations. This study was supported by the National Natural Science Foundation of China (No. 31270065, 31500019).

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